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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,710	04/14/2004	Noritake Mitsutani	960/141	5228

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EXAMINER	
NAGY, MARC I	
ART UNIT	**PAPER NUMBER**
3748	

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/823,710	MITSUTANI, NORITAKE	
	Examiner	Art Unit	
	Marc I. Nagy	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-6 is/are rejected.

7)☒ Claim(s) 7 and 8 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 4/14/2004 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 08312005.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 04/14/2004 is acknowledged. The submission is in compliance with the provisions of 37 CFR 1.97 and 1.98. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 102 (Fig. 4), 154 (Fig. 7). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective

action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

4. On page 2, line 11, "senor" should be "sensor".

5. On page 2, line 17, "senor" should be "sensor".

6. On page 3, line 22, "sensor detects" should be "sensor to detect".

7. On page 3, line 33, "has" should be "have".

8. On page 10, line 7, "ration" should be "ratio".

9. On page 10, line 8, "ration" should be "ratio".

10. On page 14, line 18, a reference number for "step" must be given.

Appropriate correction is required.

Claim Objections

Claim 3 is objected to because of the following informalities:

11. On page 24, line 16, "ration" should be "ratio".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

12. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession

of the claimed invention. The term "relaxes" is not defined in the specification, and determining the scope thereof is not ascertainable.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1, 3, 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitsutani (U.S. Patent No. 5,875,628). In regard to claim 1, Mitsutani discloses an air-fuel ratio control apparatus for an internal combustion engine of a vehicle, the air-fuel ratio control apparatus comprising: an air-fuel ratio sensor located upstream (A/F sensor 45) of a three-way catalyst (catalytic converter 38), an oxygen sensor located downstream of the catalyst (O_2 sensor 46), a control apparatus (engine ECU 70) that: performs feedback control based on the output of the air-fuel ratio sensor (see column 1, lines 49-52) such that the engine air-fuel ratio seeks a stoichiometric air-fuel ratio (see column 1, lines 20-25), performs sub-feedback control and sub-feedback correction based on output of the oxygen sensor (see column 1, lines 50-56), learns a learning value based on the sub-feedback correction value, stores the learning value, executes fuel cutoff control for a predetermined period, and inhibits the fuel cutoff until the learning is stabilized (see column 12, lines 7-9). In regard to claim 3 Mitsutani discloses the air-fuel ratio control apparatus wherein, when learning of the learning value is cleared, the air-fuel ratio control apparatus changes a feedback gain, which is

used for computing the sub-feedback correction value (see column 14, lines 1-5, 7-9), to a value that is greater than a value of the feedback gain used after the learning is stabilized (see column 11, lines 12-15). In regard to claims 5-6, Mitsutani discloses that, when learning of the learning value is performed after the stored learning value is cleared (see column 13, lines 1-12 with no iteration, or m=1), the air-fuel ratio control apparatus: determines that the learning is stabilized based on the number of times of output reversal of the oxygen sensor reaches a predetermined number during sub-feedback control (see column 14, lines 1-9 when i=m), determines that the learning is stabilized based on that a predetermined period has elapsed from the start of the sub-feedback control (see column 11, lines 64-67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsutani in view of Masanobu (Japanese Patent Publication 08-284715). Mitsutani discloses the claimed invention except for the air-fuel ratio control apparatus for an internal combustion engine having a fluid power transmission having a lockup clutch. Masanobu teaches a fuel injection quantity control device for internal combustion engine with an automatic transmission attached with a lockup function connected to an internal combustion engine, wherein the lockup function works on the basis of the air-

fuel ratio control apparatus learning in order to maintain the air-fuel ratio near the theoretical stoiciometric ratio, thus improving the learning function and fuel economy. It would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the air-fuel ratio control apparatus of Mitsutani with the lockup clutch of Masanobu to enhance the precision of the learning function as well as the fuel economy.

Allowable Subject Matter

15. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc I. Nagy whose telephone number is 571-272-2758. The examiner can normally be reached on Monday - Friday 8 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on 571-272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas Denion

THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700